

Claims:

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1. In a cellular, broadband wireless digital network an interface system at a designated base station for providing bi-directional, point to multipoint access to network interface units (NIUs) at customer sites within a cellular area and point to point bi-directional radio access to an auxiliary base station in an adjacent cellular area.
 2. An interface system as defined in claim 1 wherein said broadband wireless network is an asynchronous transfer mode (ATM) system.
 3. An interface system as defined in claim 2 comprising an ATM Radio Interface Card (ARIC).
 4. An interface system as defined in claim 3 wherein said ARIC in said designated base station is controlled by a network manager.
 5. An interface system as defined in claim 1 wherein said NIUs are at customer sites which are at fixed locations within said cellular area.
 6. An interface system as defined in claim 5 wherein time division multiple access (TDMA) ARICs are provided for communication from said base station to said NIUs and frequency division multiple access (FDMA) ARICs are provided for communication from said NIUs to said base station.
 7. An interface system as defined in claim 3 wherein frequency division multiple access (FDMA) ARICs are provided for bi-directional intercell radio communication.
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8. A system for providing broadband wireless communication over a large geographic area comprising: a plurality of overlapping cellular areas each having a base station with a transceiver for bi-directional communication with network interface units (NIUs) within each cellular area; and ATM

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Radio Interface Cards (ARICs) at each base station for bi-directional communication with said NIUs in said cellular area and for point to point communication with ARICs in other base stations.

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9. **A system as defined in claim 8 having at least one time division multiple access (TDMA) ARIC for point to multipoint communication from said base station to said NIUs and at least one frequency division multiple access (FDMA) ARIC for point to point communication from said NIUs to said base station.**
10. **A system as defined in claim 8 having a frequency division multiple access (FDMA) ARIC for bi-directional intercell radio communication between base stations.**
11. **A system as defined in claim 8 wherein one of said base stations is in communication with a network manager for controlling said system.**
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12. **A system as defined in claim 9 wherein additional ARICs are implemented to increase coverage within each cell.**
13. **A system as defined in claim 10 wherein additional ARICs are implemented to communicate with additional base stations in adjacent cellular areas.**
14. **A method of providing scaleable, broadband wireless access to a large geographic area comprising: dividing said geographic area into cellular areas; providing a base station within each cellular area; and providing ATM Radio Interface Cards (ARICs) at each base station, for communicating with Network Interface Units (NIUs) within said cellular area and for providing radio access to ARICs in base stations in other cellular areas.**
15. **A method as defined in claim 14 wherein time division multiple access (TDMA) ARICs and frequency division multiple access (FDMA) ARICs are provided for bi-**
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**directional communication between said base station and
and NIUs within a cellular area.**

- 16. A method as defined in claim 15 wherein FDMA ARICs are
provided in said base stations for bi-directional intercell
radio communications.**
- 17. A method as defined in claim 16 wherein one or more of
said base stations is provided with access to a network
manager.**
- 18. A method as defined in claim 14 wherein said broadband
wireless access is scaleable by increasing the number of
ARICs at selected base stations.**

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